



## NOTICE OF ALLOWANCE AND FEE(S) DUE

025191 7590 12/16/2002

BURR & BROWN  
PO BOX 7068  
SYRACUSE, NY 13261-7068

EXAMINER

MOONEY, MICHAEL P

ART UNIT

CLASS-SUBCLASS

2877

385-147000

DATE MAILED: 12/16/2002

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/341,151	07/01/1999	YUKIHISA TAKEUCHI	789-030	4816

TITLE OF INVENTION: DISPLAY AND ITS MANUFACTURING METHOD

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1280	\$0	\$1280	03/17/2003

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

## HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

☐ Applicant claims SMALL ENTITY status.  
See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

Complete and send this form, together with applicable fee(s), to: **Mail** Box ISSUE FEE  
**Commissioner for Patents**  
**Washington, D.C. 20231**  
**Fax (703)746-4000**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

025191 7590 12/16/2002

BURR & BROWN  
 PO BOX 7068  
 SYRACUSE, NY 13261-7068

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

**Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above, or being facsimile transmitted to the USPTO, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

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09/341,151	07/01/1999	YUKIHISA TAKEUCHI	789-030	4816

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EXAMINER	ART UNIT	CLASS-SUBCLASS
MOONEY, MICHAEL P	2877	385-147000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 \_\_\_\_\_  
 2 \_\_\_\_\_  
 3 \_\_\_\_\_

**3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)**

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) ☐ individual ☐ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

☐ Issue Fee

☐ Publication Fee

☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s):

☐ A check in the amount of the fee(s) is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Commissioner is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

Commissioner for Patents is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature)

(Date)

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMIT THIS FORM WITH FEE(S)



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United States Patent and Trademark Office  
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Washington, D.C. 20231  
www.uspto.gov

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09/341,151	07/01/1999	YUKIHISA TAKEUCHI	789-030	4816
025191	7590	12/16/2002	EXAMINER	
BURR & BROWN PO BOX 7068 SYRACUSE, NY 13261-7068 UNITED STATES			MOONEY, MICHAEL P	
			ART UNIT	PAPER NUMBER

2877

DATE MAILED: 12/16/2002

**Determination of Patent Term Extension under 35 U.S.C. 154 (b)**  
(application filed after June 7, 1995 but prior to May 29, 2000)

The patent term extension is 0 days. Any patent to issue from the above identified application will include an indication of the 0 day extension on the front page.

If a continued prosecution application (CPA) was filed in the above-identified application, the filing date that determines patent term extension is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system. (<http://pair.uspto.gov>)

Any questions regarding the patent term extension or adjustment determination should be directed to the Office of Patent Legal Administration at (703)305-1383.



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
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			ART UNIT	PAPER NUMBER
			2877	

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**Notice of Fee Increase on January 1, 2003**

If a reply to a "Notice of Allowance and Fee(s) Due" is filed in the Office on or after January 1, 2003, then the amount due will be higher than that set forth in the "Notice of Allowance and Fee(s) Due" since there will be an increase in fees effective on January 1, 2003. See Revision of Patent and Trademark Fees for Fiscal Year 2003; Final Rule, 67 Fed. Reg. 70847, 70849 (November 27, 2002).

The current fee schedule is accessible from: <http://www.uspto.gov/main/howtofees.htm>.

If the issue fee paid is the amount shown on the "Notice of Allowance and Fee(s) Due," but not the correct amount in view of the fee increase, a "Notice to Pay Balance of Issue Fee" will be mailed to applicant. In order to avoid processing delays associated with mailing of a "Notice to Pay Balance of Issue Fee," if the response to the Notice of Allowance and Fee(s) due form is to be filed on or after January 1, 2003 (or mailed with a certificate of mailing on or after January 1, 2003), the issue fee paid should be the fee that is required at the time the fee is paid. If the issue fee was previously paid, and the response to the "Notice of Allowance and Fee(s) Due" includes a request to apply a previously-paid issue fee to the issue fee now due, then the difference between the issue fee amount at the time the response is filed and the previously paid issue fee should be paid. See Manual of Patent Examining Procedure, Section 1308.01 (Eighth Edition, August 2001).

Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

# Notice of Allowability

Application No.

09/341,151

Examiner

Michael P. Mooney

Applicant(s)

TAKEUCHI ET AL.

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## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Response 10/28/02.
2. ☒ The allowed claim(s) is/are 1-40.
3. ☒ The drawings filed on 28 October 2002 and 01 July 1999 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No. \_\_\_\_\_.
  - (b) ☐ including changes required by the proposed drawing correction filed \_\_\_\_\_, which has been approved by the Examiner.
  - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the top margin (not the back) of each sheet. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

- |  |   |
|--|---|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892)  | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)          |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                    | 4 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____             |
| 5 <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. _____    | 6 <input type="checkbox"/> Examiner's Amendment/Comment                             |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
|  | 9 <input type="checkbox"/> Other  |

**REASONS FOR ALLOWANCE**

The following is an examiner's statement of reasons for allowance:

The prior art, either alone or in combination, does not disclose or render obvious a display device comprising a crosspiece formed at a portion other than the pixel structure between the optical waveguide plate and the actuator substrate in combination with the rest of claim 1.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a crosspiece-forming step of forming a plurality of crosspieces at portions other than actuator elements, of an actuator substrate arranged with the actuator elements corresponding to a large number of pixels; a pressurizing step of laminating and pressurizing an optical waveguide plate (OWP) in a state in which at least the pixel structures (PSs) are not hardened, and then hardening at least the PSs in combination with the rest of claim 14.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a crosspiece-forming step of forming a plurality of crosspieces at portions other than portions corresponding to a large number of actuator elements, of an optical waveguide plate (OWP); a pressurizing step of laminating an actuator substrate (AS) arranged with actuator elements corresponding to a large number of pixels, on the crosspiece and the pixel structures, and pressurizing the OWP and AS in directions to make approach to one another in combination with the rest of claim 15.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a crosspiece-forming step of forming a plurality of crosspieces at portions other than actuator elements, of an actuator substrate arranged with the actuator elements corresponding to a large number of pixels; a pressurizing step of laminating a surface of the AS formed with said crosspieces and a surface of the OWP formed with said PSs with each other, and pressurizing the OWP and AS in directions to make approach to one another in combination with the rest of claim 16.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a crosspiece-forming step of forming a plurality of crosspieces at portions other than portions corresponding to a large number of actuator elements, of an optical waveguide plate (OWP); a pressurizing step of laminating a surface of the AS formed with the SPs and a surface of the OWP formed with said crosspieces with each other, and pressurizing the OWP and AS in directions to make approach to one another in combination with the rest of claim 17.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a pixel-forming step of forming pixel structures on respective actuator elements (AEs) of an AS arranged with said AEs of a number corresponding to a large number of pixels and integrally having a plurality of crosspieces at portions other than AEs in combination with the rest of claim 18.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a crosspiece-forming step of

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forming a plurality of crosspieces at portions other than actuator elements, of an actuator substrate arranged with the actuator elements of a number corresponding to a large number of pixels; a second laminating step of removing the plate member, and then laminating an OWP at least on the crosspieces in combination with the rest of claim 19.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a crosspiece-forming step of forming a plurality of crosspieces at portions other than portions corresponding to a large number of pixels, of a plate member (PM); a second laminating step of removing the plate member to transfer the crosspieces and the PSs to the AS, and then laminating an OWP on at least the crosspieces in combination with the rest of claim 20.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a crosspiece-forming step of forming a plurality of crosspieces at portions other than actuator elements, of an actuator substrate arranged with the actuator elements of a number corresponding to a large number of pixels; a second laminating step of removing the plate member to transfer the the PSs to the AS, and then laminating an OWP on at least the crosspieces in combination with the rest of claim 21.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a crosspiece-forming step of forming a plurality of crosspieces at portions other than portions corresponding to a large number of pixels, of a plate member (PM); a second laminating step of removing



the plate member to transfer the crosspieces and the PSs to the AS, and then laminating an OWP on at least the crosspieces in combination with the rest of claim 22.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a pixel-forming step of forming pixel structures on respective actuator elements (AEs) of an AS arranged with said AEs of a number corresponding to a large number of pixels and integrally having a plurality of crosspieces at portions other than AEs in combination with the rest of claim 23.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a crosspiece-forming step of removing a jig, and then forming a plurality of crosspieces at portions other than actuator sections, of the actuator substrate; and a second laminating step of laminating an OWP on at least the crosspieces on the AS in combination with the rest of claim 24.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a crosspiece-forming step of removing a jig, and then forming a plurality of crosspieces at portions other than portions corresponding the large number of pixels, of an OWP; and a second laminating step of laminating a surface of the actuator substrate formed with the PSs and a surface of the OWP formed with the crosspieces with each other in combination with the rest of claim 25.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a first laminating step (LS) of laminating said surface of said jig formed with said size-defining members and said

crosspieces and a surface of said AS formed with said PSs with each other; a second LS of removing said jig to transfer said crosspieces to said actuator substrate, and then laminating an OWP on at least said crosspieces of said AS in combination with the rest of claim 26.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a crosspiece-forming step of forming a plurality of crosspieces at portions other than actuator elements, of an actuator substrate arranged with the actuator elements corresponding to a large number of pixels; a second laminating step of removing the jig, and then laminating an OWP on at least the crosspieces on the AS in combination with the rest of claim 27.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a crosspiece-forming step of forming a plurality of crosspieces at portions other than actuator elements, of an actuator substrate arranged with the actuator elements corresponding to a large number of pixels; a second laminating step of removing the jig to transfer the PSs to the AS, and then laminating an OWP on at least the crosspieces on the AS in combination with the rest of claim 28.

The prior art, either alone or in combination, does not disclose or render obvious a method for producing a display device comprising a crosspiece-forming step of using a jig including, on one surface of a PM, a large number of size-defining members (SDMs) formed to have substantially the same height as that of the crosspieces to be formed on an AS to form said plurality of crosspieces at portions formed with no SDMs,

of a surface of said jig formed with said SDMs, said portions being other than portions corresponding to a large number of pixels; a second LS of removing said jig to transfer said crosspieces and said PSs to said AS, and then laminating an OWP on at least said crosspieces in combination with the rest of claim 29.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Mooney whose telephone number is 703-308-6125. The examiner can normally be reached during weekdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 703-308-4881. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7721 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956. An alternative useful number for status inquiries is 703-306-3329.

  
Michael P. Mooney  
Examiner  
Art Unit 2877

  
Frank G. Font  
Supervisory Patent Examiner  
Art Unit 2877

FGF/mpm  
12/11/02